



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,958	10/09/2001	Motoshige Igarashi	50090-447	4102

7590 05/23/2002

McDermott, Will & Emery
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

QUACH, TUAN N

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 05/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/971,958

Applicant(s)

IGARASHI ET AL.

Examiner

Tuan Quach

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2814

DETAILED ACTION

Claims 2 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 and 7, "substantially" is indefinite; the term is not defined or characterized in the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Oda or Yamane et al.

The claimed features are anticipated by Oda as shown in Fig. 1F and 2, column 3 line 35 to column 5 line 30, including the showing of gate, e.g. 104, first insulating layer corresponding to any of layer 126/136 and the second insulating layer corresponding to layer 112, diffused region 107a/b, and by Yamane et al. as shown in Fig. 2D, column 7 lines 24 to column 8 line 58, including gate 13, first insulating layer 14, second insulating layer 18. Regarding claim 2, the function as etchstop film is a

Art Unit: 2814

process limitation which has not been shown patentable regarding the claimed device; additionally there is no etch step is required in the claimed feature of claim 3; alternatively it would have been within the purview of one skilled in the art to select material that can function as etchstop if desired when the materials are not required to be identical. Regarding the respective thicknesses as in claims 4-7 such would have been met by the showing in the figures as delineated wherein the relative thicknesses are substantially shown or alternatively, it would have been obvious to one skilled in the art that such limitations would have been obvious over the showing therein.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda or Yamane et al. as applied to claims 1-7 above, and further in view of JP 11-274300.

The references as applied above do not recite the hollow interlayer insulator.

'300 teach the inclusion of a gap 34 between the gate electrodes 24 to reduce capacitance. See the abstract.

It would have been obvious to one skilled in the art at the time the invention was made to have included a gap between adjacent gates in Oda or Yamane et al. since such is conventional and advantageous to reduce capacitance as taught by '300.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda or Yamane et al. as applied to claims 1-7 above, and further in view of Ohno.

The references as applied above do not show the low resistance film on the side of the gate and the use of connection to diffused region.

Art Unit: 2814

Ohno shows the silicide 7 on the side of gate 8b including connection to region 5b. See the abstract, Figs. 7, 11, 13, and the corresponding description, including column 9 lines 63-67, column 10 lines 63-67, column 11 lines 20-32.

It would have been obvious to one skilled in the art to have included in the above reference the low resistance layer on the side of the gate including connection to diffused region since such is conventional and advantageous as evidenced by Ohno wherein local interconnection having high reliability can be obtained.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda or Yamane et al. as applied to claims 1-7 above, and further in view of Braeckelmann et al.

The references as applied above do not recite the low k dielectric constant layer.

Braeckelmann et al. teaches the inclusion of interlevel dielectric 22 including a low k dielectric constant below 3.5. See column 3 lines 42-65.

It would have been obvious to one skilled in the art to have included in the interlevel dielectric the low k dielectric constant material in Oda or Yamane et al. since such is conventional and advantageous as evidenced by Braeckelmann et al. and since it is well known in the art that such low k dielectric material would further reduce parasitic capacitance.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yu and Lee teach semiconductor devices of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is 703-308-1096. The examiner can normally be reached on M - F from 9 to 5.

Art Unit: 2814

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Tuan Quach
Primary Examiner